

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021
 DateRun: 04/06/2021
 Experimenters: Ross Goding, Edward Judge
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Painted metal
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric, Visual
 Purpose: To evaluate the removal of Hucker's soil from painted metal

Experimental Procedure: Painted metal coupons were gathered with 3 coupons for each of 3 dilutions of both cleaners (18 coupons in total). Initial weights for each coupon were taken and recorded. Hucker's soil (Creamy Peanut Butter, Salted Butter, Wheat gluten, Egg Yolk, Evaporated milk, DI water, Printer's ink with boiled linseed oil, India Ink, Saline Solution) was spread on all 18 coupons and allowed to air dry for 2 hours. Contaminated weights were taken and recorded. Dilutions were created for both cleaners with the dilutions being 1%, 5%, and 10%. Each dilution was used on a set of 3 painted metal coupons that were loaded into an SLW machine. Each coupon and the wipe on the cleaning track were sprayed twice with each cleaner dilution. The SLW machine was run for 20 repetitions to simulate 20 wipes across the coupons. Once all coupons were cleaned, they were allowed to air dry for approximately 1 hour. After that hour, final cleaned weights were recorded.

Results:

Cleaner	Dilution	Substrate	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
Augeo Clean Multi	1%	Painted Metal	0.1989	0.1227	38.31	76.08	82.81
			0.1964	0.0001	99.95		
			0.3555	0.0356	89.99		
	5%	Painted Metal	0.1998	0.0376	81.18	85.30	
			0.2106	0.0201	90.46		
			0.2855	0.0449	84.27		
	10%	Painted Metal	0.4114	0.0885	78.49	87.05	
			0.5882	0.0519	91.18		
			0.5599	0.0476	91.50		
Calsolv DPNB	1%	Painted Metal	0.3511	0.0305	91.31	93.24	90.78
			0.2846	0.0147	94.83		
			0.4034	0.0259	93.58		
	5%	Painted Metal	0.3384	0.0681	79.88	87.76	
			0.5048	0.0335	93.36		
			0.4647	0.0463	90.04		
	10%	Painted Metal	0.4968	0.0466	90.67	91.35	
			0.4602	0.0336	92.70		
			0.4826	0.0448	90.72		

Summary:

Conclusion: The Augeo Clean Multi Cleaner's average cleaning efficiency increased as the dilution increased with 76% at a 1% dilution, 85% at a 5% dilution, and 87% at a 10% dilution. Calsolv DPNB's average cleaning efficiency was inconsistent in regard to the dilution increase with the efficiency going down from 93% to 87% at a 5% dilution and back up to 91% at a 10% dilution, but still not as high as the original 93% at a 1% dilution. Overall, Calsolv DPNB had a higher cleaning efficiency average of 90% compared to Augeo Clean Multi's cleaning efficiency of 82%. Therefore, Calsolv DPNB was more effective in the removal of Hucker's soil from painted metal.